CLAIMS

What is claimed is:

1. A laser package, comprising:

a submount;

a laser die mounted on a first surface of the submount;

a lid mounted on the first surface of the submount over the laser die; and

a soft metal disposed between the laser die and the lid, wherein the soft metal conducts heat between the laser die and the lid, and the soft metal cold flows faster than the laser die and the lid can thermally cycle.

2. The package of claim 1, wherein the laser die comprises a first metal pad and the lid comprises a second metal pad on an inner surface, the soft metal being disposed between the first and the second metal pads.

3. The package of claim 1, wherein the soft metal is selected from the group consisting of indium, gallium, mercury and tin/lead solder.

4. The package of claim 1, further comprising:

a laser driver die mounted on the first surface of the submount; and

another soft metal disposed between the laser driver die and the lid, wherein said another soft metal conducts heat between the laser driver die and the lid.

5. The package of claim 4, wherein the laser driver die comprises a first metal pad and the lid comprises a second metal pad on an inner surface, said another soft metal being disposed between the first and the second metal pads.

6. The package of claim 1, further comprising:

a photodetector die mounted on the first surface of the submount; and

another soft metal disposed between the photodetector die and the lid, wherein said another soft metal conducts heat between the photodetector die and the lid.

7. The package of claim 6, wherein the photodetector die comprises a first metal pad and the lid comprises a second metal pad on an inner surface, said another soft metal being disposed between the first and the second metal pads.

8. The package of claim 1, further comprising a lens mounted on a second surface of the submount and opposite of the laser die.

9. The package of claim 1, further comprising alignment pins mounted on a second surface of the submount.

10. The package of claim 1, further comprising a thermal electric cooler mounted between the lid and the soft metal.

11. A method for forming a laser package, comprising:

mounting a laser die on a first surface of a submount;

placing a soft metal on the lid; and

mounting the lid on the submount, wherein the soft metal is disposed between the laser die and the lid, and the soft metal cold flows faster than the laser die and the lid can thermally cycle.

12. The method of claim 11, wherein the soft metal is selected from the group consisting of indium, gallium, mercury and tin/lead solder.

13. The method of claim 11, wherein the laser die comprises a first metal pad, the method further comprising forming a second metal pad on the lid, wherein the soft metal is disposed between the first and the second metal pads.

14. The method of claim 11, further comprising:

mounting a laser driver die on the first surface of the submount;

placing another soft metal on the lid; and

wherein said another soft metal is disposed between the laser driver die and the lid after said mounting the lid on the submount.

15. The method of claim 14, wherein the laser driver die comprises a first metal pad, the method further comprising forming a second metal pad on the lid, wherein said another soft metal is disposed between the first and the second metal pads.

16. The method of claim 11, further comprising:

mounting a photodetector die on the first surface of the submount;

placing another soft metal on the lid; and

wherein said another soft metal is disposed between the photodetector die and the lid after said mounting the lid on the submount.

17. The method of claim 16, wherein the photodetector die comprises a first metal pad, the method further comprising forming a second metal pad on the lid, wherein said another soft metal is disposed between the first and the second metal pads.

18. The method of claim 11, further comprising mounting a lens on a second surface of the submount and opposite of the laser die.

19. The method of claim 11, further comprising mounting alignment pins on a second surface of the submount.

20. The method of claim 11, further comprising mounting a thermal electric cooler between the lid and the soft metal.